BOUQUETS ARE AS USEFUL AS BRICKBATS: THE INFLUENCE OF INTERORGANIZATIONAL CITIZENSHIP BEHAVIORS ON THE INNOVATION PROCESS

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ABSTRACT

This study investigates how interorganizational citizenship behavior influences the innovation process. By investigating interorganizational networks and relationships, we offer new perspectives on how these linkages can serve as sources of innovation that lever competitive advantage. We identified seven dimensions of citizenship, and analyzed them with regards to different phases of the innovation process (i.e., idea, invention, exploitation). We integrated the notions of cooperative and collaborative behavior as conditions for citizenship. Our qualitative investigation of the sailing industry cluster in New Zealand demonstrates the utility of citizenship to understand, access, and use external resources to innovate. We find that two dimensions of citizenship – advancement and altruism – are most prevalent during the entire innovation process. Citizenship tends to be embedded in collaborative linkages during the idea and invention phase, but cooperative linkages are sufficient to develop citizenship during the invention and exploitation phase. Further research is necessary to generalize the role of citizenship for the innovation process.

Keywords: innovation, citizenship, cluster

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Abstract

This study investigates how interorganizational citizenship behavior influences the innovation process. By investigating interorganizational networks and relationships, we offer new perspectives on how these linkages can serve as sources of innovation that lever competitive advantage. We identified seven dimensions of citizenship, and analyzed them with regards to different phases of the innovation process (i.e., idea, invention, exploitation). Our qualitative investigation of the sailing industry cluster in New Zealand demonstrates the utility of citizenship to understand, access, and use external resources to innovate. We find that two dimensions of citizenship – advancement and altruism – are most prevalent during the entire innovation process. Further research is necessary to generalize the role of citizenship for the innovation process.

Key words: innovation, interorganizational citizenship behavior, sport cluster

1. Introduction

Innovation comes from both internal and external sources (Chesbrough, 2006; Dagnino, Levanti, Minà, and Picone, 2015; Di Stefano, Gambardella, and Verona, 2012; von Hippel, 1988). Firms that develop innovations solely from internal knowledge are constrained by the limits of internally available knowledge, routine procedures, and by available resources that risk obsolescence (Anderson and Tushman, 1990). External knowledge can stem from interorganizational linkages and exchanges between an organization and its environment (Cohen and Levinthal, 1990; Powell, Koput, and Smith-Doerr, 1996). More specifically these external knowledge sources include competitors (Doloreux, Shearmur, and Guillaume, 2014; Hohberger, Almeida, and Parada, 2015); suppliers and subcontractors (Autry, Skinner, and Lamb, 2008; Fossas-Olalla, Minguela-Rata, López-Sánchez, and Fernández-Menéndez, 2015); education and research institutions (Dornbusch and Neuhäusler, 2015; Etzkowitz, 2012; Maietta, 2015); governing authorities and industry associations (Jandhyala and Phene, 2015; Watkins, Papaioannou, Mugwagwa, and Kale, 2015); end-users (Chatterji and Fabrizio, 2013; Lüthje, Herstatt, and von Hippel, 2005); and non-competitive industry peer networks (Zuckerman and Sgourev, 2006).

Innovations are formed through the recombination of diverse knowledge and resources (Cohen and Levinthal, 1990; Hohberger et al., 2015; Schumpeter, 1942). Accessing, acquiring, and exploiting external knowledge provides firms with additional innovative capabilities. There are different explanations about how organizations access external knowledge and resources. Absorptive capacity determines the ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends (Cohen and Levinthal, 1990, Tortoriello, 2015). The literature emphasizes interorganizational linkages, including relationships and networks, as key to access external knowledge and resources (Baker, Grinstein, and Harmancioglu, 2015; Dagnino et al., 2015). Interorganizational

linkages take many forms including formal, informal, competitive, and collaborative (Zuckerman and Sgourev, 2006). In this article we build on the concept of *friendly relationships* (Ingram and Roberts, 2000). We argue that friendly relationships permit various forms of *interorganizational citizenship behavior* (ICB) (Autry et al., 2008; Braun, Ferreira, and Sydow, 2013; Skinner, Autry, and Lamb, 2009). In this research, we posit that citizenship positively influences the innovation process. The purpose of this research is to identify which type of citizenship is evident within each phase of the innovation process.

Industrial clusters include a variety of interorganizational linkages, each offering the potential for enhanced innovation (Chetty and Agndal, 2008; Doloreux et al., 2014; Glass and Hayward, 2001). Organizations in clusters can share and acquire highly specific extramural knowledge and resources including industry-specific knowledge, norms, practices, and technologies. This interfirm, cluster-specific stock of knowledge creates an interorganizational system which differentiates the cluster from the wider industry (Doloreux et al., 2014; Malerba, 2002). Knowledge is more easily disseminated within clusters because firms have greater absorptive capacities for cluster-specific knowledge and a better learning performance (Choi, Hyun, and Cha, 2013; Pinch, Henry, Jenkins, and Tallman, 2003). Maskell (2001) argues that the cognitive distance between cluster organizations is naturally reduced. Therefore clusters facilitate knowledge transfer and utilization with reduced transaction costs. Firms in clusters can maximize these benefits by analyzing possible synergetic combinations between in-house and cluster-level resources and capabilities (Molina-Morales and Expósito-Langa, 2012).

Interorganizational interactions and their role for the innovation process are addressed by an important and growing body of literature (Dagnino et al., 2015; Love, Roper, and Vahter, 2014; Malerba, 2002). Previous research on interorganizational behavior in industry clusters has concentrated on competition (e.g., Cusumano, Kahl, and Suarez, 2015; Porter,

1998), cooperation (e.g., Dyer and Singh, 1998; Geldes, Felzensztein, Turkina, and Durand, 2014), and coopetition (i.e., simultaneous competition and cooperation) (e.g., Bengtsson and Kock, 2000; Lorgnier and Su, 2014). In this article we develop a conceptual model of innovation through citizenship. ICB is based on friendly relationships between boundary managers and hence friendly attitudes between organizations (Ingram and Roberts, 2000; Zuckerman and Sgourev, 2006). This paper contributes to closing the research gap concerning the role of non-competitive interorganizational behaviors in the innovation process. The main research question of this paper is: how does interorganizational citizenship behavior influence the innovation process?

In the next section we discuss literature that investigates interorganizational linkages as sources of innovation. In the third section we present the empirical context, research design, data collection, and data analysis procedures. In section four, we summarize the results. In the fifth section, we provide suggestions for future research, and discuss the implications of our findings for theoretical research and for practitioners working with innovation. We conclude the article with reflections on limitations and challenges related to the implications drawn from this research.

2. Theoretical background

2.1 Interorganizational linkages as source of innovation

Strategy theory argues that firms act in a competitive context (Barney and Zajac, 1994) and acquire a competitive advantage by being difficult to imitate (Barnett, Greve, and Park, 1994; Porter, 1998). Organizations seek permanently competitive advantage through unique combinations of production factors (Schumpeter, 1942) or new ways of performing activities in the organization's value chain (Weerawardena, O'Cass, and Julian, 2006). The interactional or relational strategy approach argues for collaboration, cooperation, and coordination

amongst suppliers, customers, and competitors to achieve competitive advantage (Dyer and Singh, 1998).

Network theory argues that access to a selective business network provides access to relevant but tacit information for network members. Business networks provide a source of competitive advantage over those firms outside the network (Greve, 2009). Cluster theory emphasizes socio-economic processes and spatial proximity to facilitate knowledge transfer. Organizations in clusters create competitive advantage through quick and selective diffusion of sector-specific knowledge and resources (Greve, 2009; Maskell and Malmberg, 1999). In both cases, business networks and clusters, firm-strategies are heavily based on interorganizational relations and interactions.

In network and cluster theory firms base their strategy on interorganizational linkages. Access to external knowledge is a necessary but ultimately insufficient condition for innovation. Firms need to possess an absorptive capacity to recognize, apply, and assimilate knowledge and information (Cohen and Levinthal, 1990; Tortoriello, 2015). External knowledge is sourced by boundary-spanning organization members that possess sufficient absorptive capacity (Tortoriello, 2015). Interorganizational learning is the application of external knowledge. Interorganizational learning is more likely to occur when the firms' knowledge bases are sufficiently different. However, interorganizational learning will not occur if the cognitive distance is too great (Maskell, 2001).

The relational view of strategy considers interorganizational linkages and exchanges as source of competitive advantage and explains how competitive advantage is created jointly in interorganizational settings (Dyer and Singh, 1998). It explains mechanisms that preserve relational rents resulting from interorganizational linkages and that facilitate the creation and diffusion of new knowledge and innovation (Baker et al., 2015; Choi et al., 2013; Molina-Morales and Expósito-Langa, 2012; Powell et al., 1996).

In this paper, we examine relationships and networks in a sport industry cluster to investigate the influence of citizenship on the innovation process (Autry et al., 2008; Gerke, Desbordes, and Dickson, 2015; Skinner et al., 2009). Innovation means the *"generation, acceptance, and implementation of new ideas, processes, products or services"* (Thompson, 1965, p. 2). We operationalize the innovation process by distinguishing different phases: the idea phase (i.e., idea generation, evaluation, and selection); the invention phase (i.e., the prototype development and testing), and the exploitation phase, (i.e., large scale production and commercialization) (Bergendahl and Magnusson, 2015; Dougherty, 1992; Roberts, 2007; Schumpeter, 1942). Figure 1 illustrates the different phases of the innovation process.

--- Insert Figure 1 about here. ---

2.2 Citizenship behavior as lever of innovation

Citizenship has been studied in the context of organizations, supply chains, interfirm projects, networks, and teams (Autry et al., 2008; Braun, Müller-Seitz, and Sydow, 2012; Ferreira, Braun, and Sydow, 2013; Organ, 1988; Skinner et al., 2009) but not yet in industry clusters. Interorganizational citizenship behavior (ICB) is *'interfirm behavioral tactics, generally enacted by boundary personnel, that are discretionary, not directly or explicitly included in formal agreements, and that in the aggregate promote the effective functioning of the supply chain.'* (Autry et al., 2008, p. 54). Employees who interact with other organizations (i.e., boundary personnel) can enact ICB. ICB are neither enforceable nor based on formal or contractual agreements. The prevalence of ICB results from an organization's permanent decision-making process through its agents within interorganizational dyads and networks (Autry et al., 2008).

We identify seven ICB dimensions: advancement, altruism, conscientiousness, constructiveness, compliance, loyalty, and tolerance (Autry et al., 2008; Skinner et al., 2009). *Advancement* is behavior directed at constantly improving operations in the cluster and its

outcomes. Advancement improves relationships, knowledge bases, and integrated processes linking two or more organizations. Examples include sharing databases or collaborating on product or process development with external partners. *Altruism* is behavior directed at helping other cluster members to acquire skills, knowledge, or resources. Altruism is reflected in an organization's selfless effort to assist another in solving business problems, for example through sharing acquired knowledge or experience; lending technological expertise or other competences; and providing advice, warnings, and recommendations. *Conscientiousness* occurs when people perform interorganizational tasks with higher than normal levels of forethought and effort. Examples of this behavior may be the overseeing of clients' stock, progressive fill-up, and repeated check of deliveries for accuracy and potential mistakes. *Constructiveness* is behavior showing interest and activity in interorganizational affairs that affect the interorganizational network, its members, and relationships. This behavior is reflected in lobbying on behalf of cluster members; attendance of meetings related to laws and regulations impacting on the cluster and its members; and generally looking out for the cluster's best interest in public affairs. *Compliance* means to follow or orientate behavior towards the rules, policies, and processes of the cluster as a whole or of individual cluster members. An example is compliance to quality standards or environmental norms within the cluster. *Loyalty* is defined as allegiance to cluster members and to the cluster as a whole, sometimes sacrificing own interests for the greater good. An example is to remain committed to a business partner even during difficult economic times or keeping a supplier in spite of lower prices from competitors. *Tolerance* means to accept inevitable inconveniences associated with interorganizational relationships and exchanges, e.g., delays, impositions, and inaccuracies, without retribution. Examples are the acceptance of delayed shipments or the partner firm's terms and conditions (Autry et al., 2008).

Previous research links citizenship to innovative and spontaneous behavior (Organ, 1990). The underlying motivational basis for citizenship lies in the internalization of goals and social satisfaction from relationships. The goals and relationships are either related to the organization in case of organizational citizenship behavior or related to the interorganizational setting for interorganizational contexts (e.g., supply chain). Organ (1990) argues that both these motivational patterns lead to innovative and spontaneous behavior. We suggest that this innovative and spontaneous behavior is enacted through citizenship behavior. Hence we argue that Proposition 1a: *ICBs are mechanisms through which firms understand, acquire, or use external resources (i.e., absorptive capacity);* and Proposition 1b: *ICB occurs during all phases of the innovation process, i.e., idea, invention, and commercialization phase* (Tortoriello, 2015).

3. Methods and Data Collection

We investigate the sailing industry cluster in Auckland, New Zealand. A single case study was chosen to allow rich and in-depth data analysis (Eisenhardt, 1991; Yin, 2009). The case study is used for explanatory purposes employing an abductive logic to build theory (Dubois and Gadde, 2002; Flyvbjerg, 2006; Welch, Piekkari, Plakoyiannaki, and Paavilainen-Maentymaeki, 2011).

This qualitative research used interviews (n=27) and observations (n=4) as the primary data sources, and organizational information (n=12) and archival data (n=1) as secondary data sources. The observations screened the empirical terrain, revealed the organizations and structure of the cluster, and provided opportunities to recruit participants for interviews. Semi-structured interviews were the main data source. Secondary data complemented interview data. We interviewed several organizations of ten different categories of cluster organizations. These categories identified key actors in a sport cluster and covered different types of sport equipment manufacturers, service providers, amateur or professional sport teams/clubs, sport

and state governing bodies, and education or research institutions (Gerke et al., 2015). The interviewed persons were mostly directors or general managers that were informed about interorganisational linkages and innovation in their organisation. In few other cases we interviewed persons from the marketing or other departments that were concerned with interorganisational linkages, innovation or both. Most of these interviewees could provide us with some information on either whether and how interorganisational linkages are present or whether and how these are used for innovation or both. In some cases the initial targeted person redirected us to another person from the same organisation that would be more suitable or complementary to answer our questions. In Table 1 we present the list of interviews and key information per interview including the type of cluster organization, the code of the interview, the interviewee's position, and the length of the interview transcript.

--- Insert Table 1 about here. ---

All interviews were conducted in person. Transcripts were sent to interviewees for verification. One third of participants confirmed or offered revisions of transcripts. The first theme of the semi-structured interview was the characteristics of the cluster environment and the positioning of the interviewee's organization in the cluster. The interviewees were then asked to describe any form of relationship with other cluster organizations. We encouraged the interviewees to provide concrete examples of those relationships to evoke information concerning interorganizational behavior. Finally we inquired about the link between interorganizational relationships and innovation. All data was transcribed and imported into the qualitative research software Nvivo version 10 for coding. We assigned *"chunks of data of varying size"* to pre-defined themes (Miles, Huberman, and Saldaña, 2014, p. 71-72). Quotations that were coded for both themes – interorganizational behavior and innovation phases – were interpreted as indicating links between those themes. We refer to these

quotations as cross-coded and generated cross-coding matrices. Table 2 contains the definitions for each coding theme.

--- Insert Table 2 about here. ---

New Zealand provides favorable conditions for the development of a sailing industry cluster and has a well-developed marine industry with a part that concentrates on ocean racing (Chetty, 2004; Glass and Hayward, 2001; NZ Marine, 2015).

Most of the interviewed cluster organizations were based in Auckland and surroundings. Some cluster organizations specialized in racing products and services. There were numerous ocean racing teams and hence specialized companies. Other firms specialized in leisure yachting sectors like super yachts and dinghy sailing. The Auckland sailing cluster was deeply embedded in the wider national marine industry and its central hub was located around the city's central marinas. The ocean racing sector counted around 160 employees which accounted for approximately €10 million turnover while the overall marine industry employed 7,900 people and generated €735 million turnover (Market Economics, 2012). There was a general maritime industry association that federated over 450 members but also including other marine sectors like fishing and kayaking (NZ Marine, 2015).

4. Results

The ICBs that were most frequently cross-coded with any of the innovation phases are advancement and altruism, followed by conscientiousness, constructiveness, and loyalty. In the following paragraphs we analyze the prevailing ICBs per innovation phase. Table 3 was generated from Nvivo after coding the data in order to identify the cross-coded data. It summarizes how often an interorganizational behavior was cross-coded with one of the innovation phases (#Quo) and from how many sources (#Sou). In the next step we analyzed

the cross-coded quotations. We explain and synthesize the most prominent ones, distilling major themes.

--- Insert Table 3 about here. ---

4.1 The idea phase

The idea phase consists of idea generation, evaluation, and selection (Bergendahl and Magnusson, 2015; Roberts, 2007). *Advancement* and *altruism* were reoccurring ICBs during the idea phase. Organizations from seven of the ten different categories provided examples of how advancement helped them in the idea phase. Organizations from five of the ten categories provided examples of how altruism helped them during the idea phase. Table 4 summarizes some illustrative quotations which were grouped together according to themes that emerged when analyzing the coded data. In the following paragraphs we refer to the interviewees and their quotations using the abbreviations indicated in Table 1.

--- Insert Table 4 about here. ---

4.1.1 Suppliers' involvement and integration

The shipyard SY1 explained how suppliers contribute to the improvement of the firm's knowledge bases by suggesting better input material. SY4 provided an example in which the firm gave feedback and ideas to a supplier about how to improve the design of one of their products. The interviewee pointed out that this mutual improvement of knowledge bases occurred mainly between small-and medium-sized companies (SMEs) but very little or not at all once companies reach a larger size (SY4a). In a refurbishing project a naval architect's supplier made a suggestion of using new refrigerating technology (NA1). These examples showed that suppliers provided ideas regarding material, design, and technology innovation.

Marine equipment firm ME2 provided an example of collaboration with a supplier to develop a new anchor system. Starting from one product innovation the relationship had

developed to continuous mutual advancing exchanges and improving knowledge bases (ME2a). Also the sail maker SR1 underlined the importance of not only involving suppliers but fully integrating them in the innovation process: *"It is very, very important to actually engage the suppliers and make them part of the whole process […]" (SR1a)*

In most of these examples the interacting cluster organizations had a common goal – improving the focal product – towards which they work jointly. This quotation from the public governing body summarizes the close relationships between suppliers and buyers in the industry cluster: *"Normally most of the sail makers or the spar makers or the boat builders will be just so tightly integrated into those teams that you wouldn't know where one stops, where one starts and the other finishes […]." (GB3a)*

4.1.2 Parallel involvement in sport and business

The parallel or subsequent involvement in coaching professional sailing teams and running a shipyard by the same person enabled the transfer of knowledge and ideas (SY3). Firms that work with professional sailing teams took advantage of the knowledge bases of the team but also of the team's other partners' and suppliers' knowledge bases (SR2a). There was a general willingness amongst people involved in sailing and its industry to improve each other's knowledge bases through informal advice and exchange: *"I mean being here definitely helps and then you can always ring someone up who will know how we can do this." (SR2b).* The fact of being involved with professional sport teams and athletes provides firms with input and drive for innovation: *"They have got the top technology there. They are really pushing their limits so we have certainly learnt from having involvement with these guys." (MS4a)*

4.1.3 Cooperation of complementary and competing firms

ME1 described the necessity of closer cooperation with complementary firms in the client acquisition: *"[…] in the cluster environment the thinking is that companies of a similar sector can share information for mutual benefit. So why does not a rig or a sail manufacturer share*

that information with us at an early stage, at a point where it is of some use to us to also offer additional services?" However, MS4 referred to a well-functioning debriefing process that allowed all firms that were involved in a project to advance thanks to mutual exchanges, feedback, and learning (MS4b).

Cooperation happens not only between complementary firms but even between competitors (MS4c). The willingness to advance other complementary or even competing cluster organizations was also a result of simple common sense and goodwill (MS4d).

4.1.4 Cooperation with public and non-profit organizations

Cooperation with public and non-profit organizations in the sailing industry cluster included education and research institutes, public or industry governing bodies, and sport governing bodies. In the case of ER1 a professional sailing team called upon universities for ideas for innovation: *"And they invited people, if they had good ideas that they think would help the boat go faster, to submit them. […] Then I put together the report and sent it to Team New Zealand for them to review." (ER1a)*

4.1.5 Mentoring and consulting through networks

Altruism was evident in mentoring and consulting services by former apprentices for their former employers and vice versa. In many cases the former apprentices started their own consulting business but were willing to help out their former employer to assist with the evaluation and development of new ideas *(SY3a)*. The altruistic character of this behavior was underlined by a shipyard director: *"Some people you are willing to give the advice to knowing he is not going to have anything in return purely because of who they are and what they are trying to achieve." (SY4b)* Also in this case the interviewee pointed out that this type of behavior occurs mainly amongst SMEs (SY4c).

Altruism enabled firms to solve small problems unconventionally and via informal ways. SR2 explained: *"There is the ability to have tight enough relationships […] that you*

can draw on other people's expertise." (SR2c) Firms were very open and willing to help each other out by providing knowledge or information that helped another organization to solve their problems or advance in their business as confirmed by a sail maker and rigging firm: *"It pretty easy to pick the phone up and ask people and say 'How do you do this and how do you do that?' and those people are pretty forthcoming," (SR2d);* as well as by a media and communication firm: *"As a rule I'd say people are very, very open and very polite about providing information and about being interviewed and about us going through their yards and things like that." (MC1)*

4.1.6 Intermediaries as information providers

Service providers are key intermediaries between core equipment manufacturers and system suppliers. Service providers install and maintain specialized equipment, conduct general overhauls, update quality and security, and provide inspection certificates. Since service firms work with many different core equipment manufacturers and suppliers they have a broad overview of the industry and its technologies. Therefore service firms are an important source of feedback for improvement and new ideas *(MS4e).*

4.1.7 Federating network meetings

Two occasions where altruism through knowledge and information sharing was enacted and fostered were federating networking meetings and events for cluster members. The local marine industry association organized regularly networking events to enable face-to-face meetings which were most fruitful for the development of collaboration and citizenship according to GB1. These informal exchanges aimed at the evaluation of business opportunities and ideas for production optimization; but they also dealt with sharing ideas and collaborations for new product developments (GB1a).

Overall there was a high commitment in the cluster organizations to *"not just do the job that they have been paid for but also to help out in other areas" (SR1b).* For example

cluster organizations opened their doors and made available their locations to welcome industry cluster events such as the above mentioned *"After-5-Networking-Events" (SY2a).* At this occasion cluster members had the chance to exchange new ideas and to discuss potential cooperation or collaborations.

4.2 ICB during the invention phase

The invention phase consists in prototype development and testing (Fagerberg, 2011; Roberts, 2007). *Advancement, altruism,* and *conscientiousness* were mostly cross-coded with the invention phase. Organizations from seven of the ten categories provided examples of how advancement and five how altruism helped in the development or testing of the prototype of a product. Organizations from four of the ten categories mentioned situations in which conscientiousness has played a role during the invention phase. Table 5 summarizes the most illustrative quotations according to themes that emerged when analyzing the coded data.

--- Insert Table 5 about here. ---

4.2.1 Joint new product development in interorganizational teams

One shipyard director explained that they closely collaborate with a marine equipment firm for new product development (SY3b) or with naval architects (SY3c). A similar type of close collaboration happens in larger boat projects where the key parties involved are selected early in the process and physically work side by side over a couple of months to realize a high-performing ocean race boat (SR1c). A sail maker compared the atmosphere in such an ocean racing boat project to *"a big library. You sit in there. It's just a continuous cycle of building of knowledge. It's quite a unique sort of environment." (SR1d)*.

SR4 explained that there are not only the different firms involved in the boat development but also the professional sailing team and the university that helped to develop new products for the boat, to give ideas for little improvements, and to test prototypes.

Furthermore, occasionally the university was involved for product testing and production optimization (SR4a). Thanks to the collaboration between university, sail maker firm, and a professional ocean racing team, a sail testing facility was built. Professors and technical staff from the university contributed to the product development and improvement. There was no payment for the involvement in this project (ER1 b). Yet, financial and political constraints hindered future collaborations of this kind (ER1c). There were relationships between a university and a sport governing body but they were limited to occasional exchange of semi-professional sailors or performance measuring equipment (ER1d).

Marine equipment firms contributed to the product development process by accompanying and advising the boat builder or designer in the choice of equipment for the sail and rigging system on the boat. Clients might actually accept higher prices for the knowledge and advice of a local marine equipment specialist (ME3a).

4.2.2 Buyer testing of and feedback on prototypes

While for the idea generation phase it was the suppliers that provided input, during the invention phase it was the buyers who provided feedback and ideas for improvement (SY4d).

Another case where the buyer provided important feedback during the product development phase was a local sailing club whose youth coach worked closely with the boat builder and designer on the development of youth training sail boats (AO2). Similarly professional sailors contributed to the invention phase by testing the boat and boat pieces prototypes and then providing feedback to the designers and builders during the construction process (PS3a).

SR4 referred to a case where the shipyard was conducting tests on the material delivered by SR4 in to verify the quality of the delivered material compared to other suppliers. On demand of SR4 the shipyard would provide them with the testing results to help them to develop better material (SR4b).

4.2.3 Recombination of resources from different suppliers

SY4 describes a situation in which they took ideas and products from three different suppliers to bring these elements together in a new product. SY4 recombined input from three different firms that otherwise would not have any relationships (SY4e).

The national elite sport organization worked with several suppliers of performance measurement in order to recombine the different products to a new solution. The idea for the product came from ocean racing and needed to be adapted to the smaller boats of Olympic sailing (PS2).

4.2.4 Circulation and networking in the local supply chain

In the Auckland sailing industry cluster *"Everybody knows everybody"* even if *"They might not know them directly" (ME3b).* This informal network and the cluster members' attitudes allowed a fluid information dissemination even before suppliers were officially selected (ME3c). Suppliers were willing to provide technical advice leading up to a project. The interviewee regards this consulting role as beyond the sales role (ME3d). This technical assistance helped the naval architects and boat builders to realize the prototype.

Boat-building projects for professional ocean racing teams and races federated the ensemble of local competences and resources that are embedded in the local industry and supply chain. The effective functioning of this local industry network required at least temporarily a certain level of altruism from the participating organizations (PS3b). Since the sailing races are reoccurring every few years, these projects are not permanent but regularly renewed facilitating a recombination of resources and competences through individuals moving around the different professional teams and the various marine firms (PS3c).

4.2.5 Passion and initiative

Citizenship is also demonstrated by passion and initiative of cluster organizations' representatives working together on the prototype, e.g., a manager that takes up new

responsibilities without being trained for them (SR1e). Personal interest and passion made employees and managers going beyond their assigned tasks and beyond organizational boundaries (SR1f, SR1g, PS3e). This work ethic was further complemented by honesty and tolerance. While one would not be blamed for making a mistake it was not tolerated to *"finger-point"* but everyone was encouraged to help find solutions if problems occur (MS2). For example, SY2 explained the willingness of suppliers of sails or rigging equipment to participate at sea trials that could be quite long and at inconvenient times (SY2b).

4.3 ICB during the exploitation phase

The exploitation phases covers the transfer to a large scale industrial production (if necessary or desired) and the commercialization of the final prototype (Dougherty, 1992; Schumpeter, 1942). There is no one single dominant type of citizenship evident during the exploitation phase but advancement, altruism, constructiveness, and loyalty all occur to a similar extent to facilitate the exploitation of an invention. Organizations from five (altruism, loyalty) and four (advancement, conscientiousness) of the ten different categories indicate ICB as relevant during the exploitation phase. Table 6 summarizes some illustrative quotations for ICB during the exploitation phase.

--- Insert Table 6 here. ---

4.3.1 Joint promotional activities

A common form of advancement were joint promotional activities during trade shows. While this could be an initiative of a group of companies, more often this was on the initiative of public authorities or industry associations. The advantages of the central organization of a presence at a trade show were cost reductions, higher visibility, and possibilities to exchange with companies from the own local supply chain or industry (SR2e, SR4c). National identity played an important role in the cluster organizations' reasoning for participating in these

activities: *"The brand New Zealand has got a very high ranking internationally for boats like for 'Champagne' you buy the French brand if you want the best." (GB1b).* Firms could chose to join these collective initiatives but were not bound to as it is the case in corporate structures (GB1c)

Another example of cooperative promotional activities at a smaller scale was the Marine Integration Group. Four differently specialized marine equipment firms got together to offer and sell an integrated product combining the *"entertainment system, the wiring, the control panels, the GPS navigation, the lighting, so they all work together, so companies can take on a bit, or the other bit, or the whole bit." (GB2a).*

4.3.2 Mutual recommendation and word-of-mouth

Altruism was evident in the cases where companies were recommending each other to get new clients without charging any fee (SY4f). Cross-promotion was also the case for a university's research and testing facility and a start-up that came out as a spin-off of this activity (ER1e). Marine equipment firms and specialized media cooperated to leverage and multiply attention and visibility (ME3e). Mutual referring and responding to inquiries was also common use between marine brokers (MS1a, MS1b). Good and loyal relationships were the basis for this mutual recommendation (MS4e). However these behaviors concerned rather normal operations than the commercialization of inventions.

4.3.3 Mutual or unilateral assistance and learning

Trade shows were not only useful for visibility and cost reasons but also to facilitate exchange and cooperation between cluster organizations (GB1d). There were examples of mutual or unilateral assistance in entering and developing new markets. In the case of ME2 this led to concrete results. ME2 helped one of their suppliers to sell their products in the super yacht segment which was not their target market initially (ME2b). The industry association was

regularly providing assistance to individual firms or a group of firms to increase their business opportunities (GB1e).

The New Zealand trade agency had put in place a special program that aimed at increasing and supporting collaborative activities amongst New Zealand marine companies, including firms in the sailing industry, to conquer international market places (GB3b). Even though collaboration was embedded in the culture of the marine industry, the government sought to foster this dynamic, especially with regards to the commercialization of products and services (GB3c).

4.3.4 Commitment to cluster

ME3 emphasized that *"you really have to rank the common goal as much higher than you do your self-interest"* when working in close collaboration with firms and organizations towards a common goal, the growth of the marine industry *(ME3f).* ME3 pointed out that because the marine industry is dependent on a leisure activity, it was the responsibility of all industry members to make sailing attractive and enjoyable regardless of whose customer is concerned in order to grow the market (ME3g). With the same reasoning ME3 was also sponsoring regattas, sometimes jointly with a competitor (ME3h). Their business philosophy pretty much reflected advancement and altruism towards their business partners at the commercial level (ME3i). Loyalty and commitment to the marine and sailing industry was high also due to the fact that most of the enterprises were SMEs (GB3d).

5. Discussion and Implications

Strategy has traditionally been based on the notion of competitive advantage that is attained through superior combination of product factors compared to other actors in the industry (Barnett et al., 1994; Barney and Zajac, 1994; Porter, 1998; Schumpeter, 1942). Alternative views on strategy suggest achieving competitive advantage through interfirm cooperation (Dyer and Singh, 1998; Geldes et al., 2014), collaboration (Bell et al., 2009; Daugherty et al.,

2006), or through simultaneous cooperation and competition – coopetition (Bengtsson and Kock, 2000). Common to these new approaches to strategy is that interorganizational behavior is no longer based on hostile and destructive attitudes towards other market actors but on friendly and constructive interaction approaches (Zuckerman and Sgourev, 2006). Idiosyncrasies of sport-based industries have provoked new even more radical strategic approaches on how to gain competitive advantage through constructive interactional approaches based on friendly attitudes. These new approaches favor citizenship based on collaboration and cooperation to achieve competitive advantage (Autry et al., 2008; Dyer and Singh, 1998).

In this article we suggested that citizenship levers innovation across all phases of the innovation process to achieve competitive advantage. We argued that Proposition 1a: *ICBs are mechanisms through which firms understand, acquire, or use external resources (i.e., absorptive capacity);* and Proposition 1b: *ICB occurs during all phases of the innovation process, i.e., idea, invention, and commercialization phase* (Tortoriello, 2015). Figure 2 and Table 7 summarize the results concerning Proposition 1a and 1b.

--- Insert Figure 2 here. ---

--- Insert Table 7 here. ---

Proposition 1a is confirmed because the interviewees clearly state numerous examples where ICBs have allowed the cluster organization to access, acquire, or use external resources, knowledge, or information. However, clear evidence for the role of ICB in the creation of absorptive capacity was revealed only for the ICB dimensions advancement and altruism for the idea phase, in addition to that conscientiousness for the invention phase, and constructiveness and loyalty for the exploitation phase. Hence, Proposition 1b is equally confirmed. Compliance and tolerance seem not to play any role for the innovation process.

We suggest the following three themes for further investigation. The relational strategic approach based on ICB should be studied in additional interorganizational contexts. Further research should investigate to what extent citizenship occurs in different industries, sectors, and cultural contexts. The second topic is the impact of citizenship on other aspects of innovation than the different innovation phases, such as process versus product innovation. Different types of citizenship might influence different types of innovation. Third, citizenship as lever of innovation to gain competitive advantage should be compared to traditional sources of innovation (e.g., the internal firm resources or the customers). A theme of investigation could be how to create synergies between different innovation sources through citizenship. The study of citizenship at several levels, for example organizational and team-level, could complement this research direction.

If citizenship as relational strategy works, managers need to consider this as an alternative to the traditional competitive strategies employed to gain competitive advantage. The dominant adaption approach explains organizations' interactions with their environment as reactions to pressures, constraints, and challenges in their environment (Astley and Fombrun, 1983; Hannan and Freeman, 1977). If managers take on a positive and friendly approach towards their organization's environment and interactions are oriented towards constructive linkages and interactions, organizations may reduce and respond more effectively to exogenous pressures, constraints, and challenges. More precisely, the challenge of remaining competitive within the fast changing environment of markets in capitalist systems (Schumpeter, 1942), might be better mastered through constructive attitudes and linkages rather than hostile attitudes and destructive interorganizational interaction patterns (Autry et al., 2008). Furthermore, citizenship might reduce the cost of innovation because the involved actors can optimize and harmonize the innovation process (Schumpeter, 1942).

The relational strategy approach is somewhat inconsistent with previous literature that explains organizational behavior when interacting with their environment (Astley and Fombrun, 1983; Hannan and Freeman, 1977). The quest for competitive advantage through new combinations of production factors has typically been pursued through the basic competitive strategies: cost leadership, differentiation, or niche strategy (Ansoff, 1987). Since the capitalist system is based on the process of *"creative destruction"* (Schumpeter, 1942, p. 83) and *"disruptive technologies"* (Utterback and Acee, 2005, p. 1), its actors are conditioned to utilize these competitive strategies. It seems to be a challenge to change strategies since relational strategies like citizenship only work if adopted by several organizations but not if taken on by one individual and isolated organization. The role of intermediaries such as industry associations or cluster governing bodies would be interesting to study regarding this problem of collective rationality (i.e., a strategy that is rational for a single organization will only be rational if adopted by others, too) (Hannan and Freeman, 1977). The challenges of relational strategies such as citizenship are to implement them consistently within an industry, sector, or geographical denominated area. Therefore we argue for more research and attention of managers and politicians to this alternative approach to strategy.

Limitations of this study are the application to a specific – perhaps even an atypical case – a sport industry cluster. Perhaps the nuanced characteristics of sport and clusters have allowed relational strategies to contribute to innovation in unusual ways. Both of these research characteristics limit the generalizability of the theory produced in this research to sport industries that are structured in form of industrial clusters.

6. Conclusions

Citizenship behaviors lever innovation. Bouquets are as useful as brickbats. The sailing industry cluster in New Zealand reflects a changing paradigm in strategy from competition-driven behavior based on hostile attitudes and reflected in destructive interactions towards

collaboration-driven behavior based on friendly attitudes and reflected in constructive interactions. Multiparty collaboration helps organizations adapt to changing environments and to propose new solutions (Fjeldstad, Snow, Miles, and Lettl, 2012). New approaches to strategy demand changes in managerial attitudes and behavior that have historically been determined by the traditional view of competitive advantage through destruction and replacing of existent products, services, and organizations (Barney and Zajac, 1994; Porter, 1998; Schumpeter, 1942). We hope that researchers, practitioners, and politicians will increasingly focus their attention on citizenship as behavioral levers of innovation, and hence as sources of competitive advantage. Citizenship values, attitudes, and behavior are able to not only improve resource utilization but also to create sustainable firm strategies, industries, and economies.

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Figures

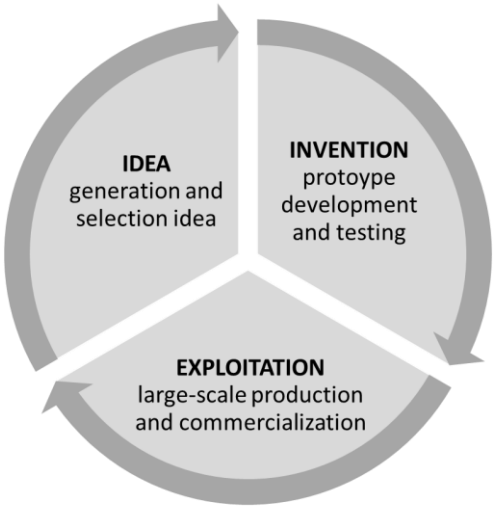

Figure 1. Different phases of the innovation process

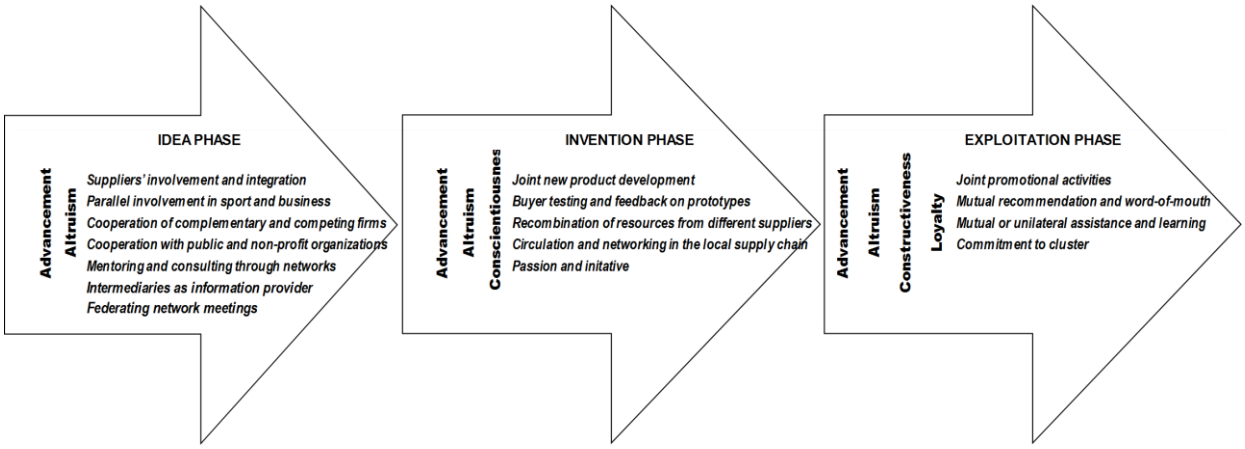

Figure 2. ICB in the innovation process.

Tables

Table 1. List of interviews

Table 1. List of interviews

N°	Type of cluster organisation	Code	Interviewees' position	Pages of transcript
1	shipyard	SY1	General Director	13
2	shipyard	SY2	Project Coordinator	19
3	shipyard	SY3	General Manager	19
4	shipyard	SY4	Associate Director	21
5	naval architect	NA1	Designer	13
6	naval architect	NA2	Naval Architect	14
7	marine equipment	ME1	Director	13
8	marine equipment	ME2	Sales Manager	11
9	marine equipment	ME3	Director	19
10	sail maker/ rigging	SR1	Designer	15
11	sail maker/ rigging	SR2	General Manager	10
12	sail maker/ rigging	SR3	Director	17
13	sail maker/ rigging	SR4	Managing Director	17
14	marine services	MS1	Director	10
15	marine services	MS2	Director	13
16	marine services	MS3	Director	14
17	marine services	MS4	General Manager	11
18	media/ communications	MC1	Editor	17
19	professional sport	PS1	Athlete Life Advisor	12
20	professional sport	PS2	Performance Analyst Team Leader	15
21	professional sport	PS3	Design Performance Analyst	14
22	education/ research	ER2	Professor/ Director Research Unit	13
23	governing body	GB1	Director	16
24	governing body	GB2	Customer Manager	19
25	governing body	GB3	Programme Leader	16
26	amateur organisation	AO1	Vice Commodore	11
27	amateur organisation	AO2	Marketing Manager	11

Table 2. Definition of coding themes

Table 2. Definition of coding themes

Innovation process phases		
idea	Idea means generating a thought or suggestion as to possible course of action that will lead to change in existing products or processes. The idea phase consists of idea generation, evaluation, and selection.	Bergendahl and Magnusson, 2015; Roberts, 2007
invention	Invention means the first realization and test of an occurred idea for a new product or process. The invention phases comprises the prototype development, testing, and refinement.	Fagerberg, 2011, Roberts, 2007
exploitation	The exploitation phase includes the transfer to a large scale production and the commercial exploitation of the invention in the market place.	Dougherty, 1992; Schumpeter, 1942
Interorganizational behaviors		
collaboration	Any form of interorganizational exchange that involves two or more cluster organizations working jointly towards a common goal.	Daugherty et al.., 2006; Dyer & Singh, 1998
cooperation	Any form of interorganizational assistance between more than two different cluster organizations working independently towards a common goal.	Benson, 1975; Tuomela, 1993
citizenship	Any form of interfirm behavioral tactics, generally enacted by boundary personnel, that are discretionary, not directly or explicitly included in formal agreements, and that in the aggregate promote the effective functioning of the cluster.	Autry, Skinner and Lamb, 2008
advancement	Taking steps to improve relationships, knowledge bases, and integrated processes linking one or more cluster organizations.	Autry, Skinner and Lamb, 2008
altruism	Behaviour directed at helping a cluster organization in solving problems or acquiring needed skills/ knowledge.	Autry, Skinner and Lamb, 2008
compliance	Orientation toward the rules, policies, and processes applied by other cluster organizations; compliance with cluster behavioral norms.	Autry, Skinner and Lamb, 2008
conscientiousness	Performing cross-organizational tasks with higher than normal levels of forethought and effort.	Autry, Skinner and Lamb, 2008
constructiveness	Interest and activity in interorganizational affairs affecting the relationships between exchange cluster organizations.	Autry, Skinner and Lamb, 2008
loyalty	Allegiance to cluster organization and the cluster as a whole, sometimes sacrifying the interests of the cluster organizations for the greater good.	Autry, Skinner and Lamb, 2008
tolerance	Identification and tolerance of inevitable delays/ impositions/ inconveniences associated with interorganizational exchange without retribution.	Autry, Skinner and Lamb, 2008

Table 3.

Table 3. Cross-coding of interorganizational behavior and innovation phases

	Idea		**Invention**		**Exploitation**	
	# Quo	# Sou	# Quo	# Sou	# Quo	# Sou
Advancement	23	13	27	11	14	8
Altruism	16	9	14	6	21	8
Compliance	0	0	2	2	4	3
Conscientiousness	8	6	13	8	7	5
Constructiveness	1	1	1	1	15	6
Loyalty	0	0	6	6	10	8
Tolerance	1	1	2	2	1	1
ICB	49	-	65	-	72	-
Collaboration	6	5	17	11	15	8
Cooperation	4	4	5	4	10	8

number of cross-coded quotations	0	1-4	5-10	> 10

Table 4. Citizenship in the idea generation phase

Table 4. Citizenship in the idea generation phase

Suppliers' involvement and integration		**Source**
Advancement	"Yes, our purchasing manager also brings us the information *[from the supplier]* like 'Hey, we are using this particular kit, but this one is better and cheaper. I think you should make a change.' "	SY1
Advancement	"Then we showed them and pointed out what was wrong […] and they designed a whole new one. We haven't bought one yet but they know how to do it and they will do it for us if we need it."	SY4a
Advancement	"So, he suggested that we change that sort of system and then I went out and found the compressor that I wanted to use and he built the box for it and then we put all the pieces together."	NA1
Advancement	"Probably much of our innovation goes back to our suppliers in that we have on certain products worked hard and trying to liaise with the suppliers to improve the product and I think here of the anchor system. [...] That, when it first came out, had some weak points and our service manager worked hard with the supplier to improve it. And that is to the extent now where the supplier, [name of company], if they are looking to review a product or any changes that he suggests, they usually come up with changes and they ask him to comment on it. So it's kind of a two-way process."	ME2a
Advancement	"It is very, very important to actually engage the suppliers and make them part of the whole process and not just say 'you sell sails and you build sails and you design sails, do it. No, we want you to do all that but we want you to also contribute to the design of our boat and therefore you might be able to design a better sail, because of that.' "	SR1a
Advancement	"Normally most of the sail makers or the spar makers or the boat builders will be just so tightly integrated into those teams that you wouldn't know where one stops, where one starts and the other finishes in a lot of cases as well as the sort of really demanding personalities that drive a lot of the teams."	GB3a
Parallel involvement in sport and business		
Advancement	"I have coached the New Zealand Olympic sailing [team] for a long time back ten years ago and I never really saw or very little that the other boats were using things that they would have got from the America's Cup or the Around-the-world-race. I didn't see other boats doing that, other than us."	SY3
Advancement	"We might be developing a product for ETNZ or a manufacturing technique for ETNZ in one area and they have a relationship with a boat builder who is building the hull to develop the product in another area and then they might say 'Hey there is this clever moulding technique which we found these guys are using over here, you should try that for this project.' So that kind of cross-fertilises some of the innovation."	SR2a
Advancement	"I mean being here definitely helps and then you can always ring someone up who will know how we can do this."	SR2b
Advancement	"They have got the top technology there. They are really pushing their limits so we have certainly learnt from having involvement with these guys."	MS4a
Cooperation of complementary and competing firms		
Advancement	"What I am talking about is in a cluster which is I guess the context we are talking about, in the cluster environment the thinking is that companies of a similar sector can share information for mutual benefit. So why does not a rig or a sail manufacturer share that information with us at an early stage, at a point where it is of some use to us to also offer additional services?"	ME1
Advancement	"It's with talks and debriefings made of every job that we do. So, there are a lot of meetings that go down after the event and we talk about things that we have learnt and things that were not quite right, things that were great as well."	MS4b
Advancement	"There is sometimes a bit of a conflict of interest as well, so we don't want to give too many secrets away to the other companies. You need to keep a few tricks up your sleeve but we try to share as much as we can and be pretty open with most things that we do."	MS4c
Advancement	"There is nothing in our job descriptions that says we are going to share our information, but like I say, if you have got a product and you can improve it to make your life and everyone else's life better in the project, then you go as far as you can to make that happen.	MS4d

Cooperation with public and non-profit organizations		
Advancement	“And they invited people, if they had good ideas that they think would help the boat go faster, to submit them. So I took up on that challenge and coordinated a meeting here at the university where I invited my colleagues from all around the university to submit their ideas to me. Then I put together the report and sent it to Team New Zealand for them to review.”	ER1a
Mentoring and consulting through networks		
Altruism	"We ask them just for advice, lots of them got doctorates, masters, and they run their own consultant businesses, but because we got so involved with them, you can pick up the phone anytime and talk to them and ask them for some ideas."	SY3a
Altruism	"Some people you are willing to give the advice to knowing he is not going to have anything in return purely because of who they are and what they are trying to achieve."	SY4b
Altruism	"I think that question is a good one, it is a cracker, but the answer to it is as companies grow they do more work in-house and they go away from being like me where I am willing to help everyone, work with everyone, learn from anyone and teach as many people as I can."	SY4c
Altruism	“There is the ability to have tight enough relationships because we are close by that you can draw on other people's expertise. […] and we went out to some local boat builders because it's actually more like a boat than it is a boom and asked them how they do it. And they gave us some suggestions and various things and then we took it on from there.”	SR2c
Altruism	"It pretty easy to pick the phone up and ask people and say "How do you do this and how do you do that?" and those people are pretty forthcoming, "	SR2d
Altruism	"As a rule I'd say people are very, very open and very polite about providing information and about being interviewed and about us going through their yards and things like that."	MC1
Intermediaries as information providers		
Altruism	“We are always hands-on and we are seeing how the product works and how it performs. So only we can provide feedback back to [name of core equipment manufacturer], and we do give them a lot of feedback of ways to improve things and whether things have worked, new ideas that they have come up with, whether it has paid off or not.”	MS4e
Federating network meetings		
Altruism	“Face-to-face is actually the best means of communication and that's why we arrange personal face-to-face meetings, whether it is having morning tea or a beer at the end of the function or conferences. Those are the general discussion points. People talk about what they are doing and then people can explore where they might have a business opportunity to assist each other and I think that is part of the culture of sharing information but it is usually done on an informal basis and you can only do this face-to-face. You can't do that through email, facebook, or anything else. [...] So they are always looking for any opportunities or ideas for additional sales or cost effective production means. So, sharing information with other companies means that each company does not have to reinvent the world.[...]. So, that is one of our strengths, the collaboration.”	GB1a
Altruism / Conscien-tiousness	"They are able do not just do the job that they have been paid for but also to help out in other areas of the organisation."	SR1b
Altruism	"We host meetings at each other's facilities and it removes time and frustration because you are in constant communication."	SY2a

Table 5. Citizenship in the invention phase

Table 5. Citizenship in the invention phase		*Source*
Joint new product development		
Advancement	“With some of the suppliers we help them to develop their products, too, but it is also for our gain, we both gain […] So we work closely with them and we have developed our own products with them.”	SY3b
Advancement	“We are just doing a new hull. For that we have used a naval architect who has done a lot of work on helping to develop the software that he is using.”	SY3c
Advancement	"So what was figured out was that when you design, you don't just design sails independently of a mast or a boat, but you treat it as a system. So what they did, they said 'Right, we going to start designing this boat a year ahead, we want the boat designer, the mast designer, the sails designer, all start working together.' [...] the catamaran [...] [we] started designing two years ago and we started sailing it only six months ago. So for 18 months we have been designing and working as a team, 30 people."	SR1c
Advancement	“[…] a big library. You sit in there. It's just a continuous cycle of building of knowledge. It's quite a unique sort of environment.”	SR1d
Advancement	"Yes, we have major collaborations with the local university. Through the mid-90s to the mid-2000s we co-built a wind tunnel together for instance with the University of Auckland."	SR4a
Altruism	"There was no real talk about paying for labour or anything like that. A lot of the support was 'in kind' ".	ER1b
Altruism / Advancement	"So that is not going to happen because of it'll need some funding which we don't have but certainly I think there is a real willingness here in the university to try to help the marine industry.”	ER1c
Advancement	"We have had many projects with students who are potential Olympic sailors, building yacht models and testing them so that they can learn themselves, but we haven't been funded by New Zealand Yachting. They have lent us equipment some time like a recording GPS or something so that student can take it out on the yacht, but nothing serious."	ER1d
Advancement	“Yes, the people can buy it in theory cheaper online but you have got to buy the right thing. So the counter to buying a product online from overseas is to basically get good advice, for example design advice. So it's to make sure that they are actually buying the right product and that sort of thing.”	ME3a
Buyer testing and feedback on prototypes		
Advancement	“I mean there is one company down in Hamilton that does table legs that retract so that you can turn the table down into a bed and they didn't quite go well enough. Then we showed them and pointed out what was wrong and they designed a whole new one.”	SY4d
Advancement	"The builder Greg could look at how they [the boats] perform for the youth programme, what's wrong with them, and what we are looking for as a sports boat, a training boat. And then so he developed the next generation, the 6m. And then probably they sailed every weekend and Guy [the coach] would have said, this is what's wrong and this is what's right. Greg would have taken that feedback and now we are on the 7m."	AO2
Advancement	“So, we like to test that on the small boats in the water because there are a lot of dynamics aspects of sailing and things like that, so it is hard to model on the computer. So we go out and the sailors that will be sailing the boat, that are the same sailors that sail the AC72. They get practice sailing with this type of daggerboard and the whole team and people involved will have a meeting with the sailors and the designers and engineers and we will get feedback basically saying this was good, this was bad, a new idea of how you can change the daggerboard."	PS3a
Altruism	"I guess their business is quite a bit of business, so the amount of time it took to test a few samples is probably very little for them but for me to go and pay someone else to do it, the university or whatever, that would be quite expensive."	SR4b
Recombination of resources from different suppliers		
Advancement	"So we work with three companies to develop a final idea and then we have taken that final idea to a fourth company who we found that is expert in joining all of the products together in one result."	SY4e
Advancement	"So we started working with both of them but it has been more with the hardware data transfer side of things. So we work with them in terms of making the technology they had more accessible and usable for our situations […]"	PS2

Circulation and networking in the local supply chain		
Altruism	“Everybody knows everybody [...] They might not know them directly but they know who they are or whatever and that is through the sailing, through the designers, etc. They tend to be relatively practical in terms of looking at the boat and the construction and even the design and we are trying to be helpful.”	ME3b
Altruism	"He [naval architect] would ring us if he is doing a design and there is a boat and they are doing the deck layout. He would talk to us and we would help him to do the deck layout design and say these are the products that we will recommend."	ME3c
Altruism	"And we will work through the systems and the blocks and everything that you need for that sort of process. And that might be with the designer and the project manager and then you are relying on the builder to build everything with the design in place. As I say it's not a selling role. We regard ourselves, even the guys here in the shop, it's providing technical information."	ME3d
Altruism / Loyalty	"I think your topic is interesting, looking at the side of a collection, a bunch of people, in the same industry in Auckland, because it is really made up of so many little companies. So when you have one big project like the AC72, everybody is kind of coming together to contribute to that project but then, I guess, when the project is done, everybody has to figure out what to do on their own."	PS3b
Altruism	"So for instance, that boat is an example that everything that the designer might have learnt from that process and the boat builder might have learnt from building that boat, both the builder and the designer are now working on our AC72."	PS3c
Passion and initative		
Conscien-tiousness	"I am not a wing sail designer, I've never designed a wing in my life but there was a group of four or five people that didn't have very much directions. So, the head of the team said to me 'You need to manage this group.' "	SR1e
Conscien-tiousness	"I am sure that the fact that we are a sport oriented product, lots of the people here are sailors and they are not just passionate from a work point of view, they are passionate from a kind of personal interest point of view. So in that case they go definitely over and beyond of what we might agree is normal service."	SR1f
Loyalty/ Conscien-tiousness	"The guys are working lots of overtime, particularly for ETNZ at the moment whereas it is maybe a mixture of maritime loyalty but kind of national pride as well."	SR1g
Conscien-tiousness	"If we call them up and say "We need a part to be built in three weeks.' and typically it would take six weeks, then they get it done in three weeks. "	PS3d
Tolerance/ Conscien-tiousness	"There is a tolerance for mistake but there is also the idea of actively finding solutions to fix the mistake together, not finger-pointing but "let's work together and find a solution" before we attribute blame to anyone."	MS2
Conscien-tiousness	"And when it comes to sea trials and commissioning, it's great because we have got their representatives on board. We have got the sail makers’ representatives on board."	SY2b

Table 6. Citizenship in the exploitation phase

Table 6. Citizenship in the exploitation phase		*Source*
Joint promotional activities		
Advancement / Constructiveness	"NZ Marine has been a quite good umbrella organisation for carrying the New Zealand flag into overseas markets."	SR2e
Advancement	"So we are part of the NZ stand. So they have organised that. They are nice get-togethers for everyone."	SR4c
Advancement	"We do group bookings at boat shows and take up 20 or 30 exhibitors all together and they work on the same stand under the New Zealand umbrella.The brand New Zealand has got a very high ranking internationally for boats like for 'Champagne' you buy the French brand if you want the best."	GB1b
Constructiveness	"It makes the New Zealand marine industry like a big corporation with these different fingers of the independent players. So we don't direct our companies or tell them what to do. They can join these joint promotions, take the additional sales or productivity gains from that and make their own business flourish hopefully."	GB1c
Advancement	"They basically work together to develop products and services. So they provide a solution to boat builders around the entertainment system, their wiring, their control panels, their GPS navigation, their lighting, so they all work together, so companies can take on a bit, or the other bit, or the whole bit."	GB2a
Mutual recommendation and word-of-mouth		
Altruism / Loyalty	"I have brought in another company saying these guys are doing a good job, so we introduced them but we were not going to put a cent on it. This is a friendship. We have done that on a couple of jobs and we get return work."	SY4f
Altruism / Constructiveness	"And as I said everywhere we go we have a stack of brochures over there of everything, [company name] and the [university research unit] one, wherever you have one, you have got the other one. We sort of cross-promote as well when we go to conferences, when you are giving a paper from university, it usually has got [company name] in it somehow in it anyhow because a lot of the stuff that we do has it in it anyhow."	ER1e
Altruism	"Like "Sail World", it's a web site. So we have some advertising with them and they say if you are going to do a regatta, let us now where it is. We come along and we'll do a press release on a digital media and you're trying to leverage it."	ME3e
Altruism	"They might say 'We have been given a certain design boat that we don't know very well' and knowing that we might have handled that particular design before, they might ring up and ask for our opinion to what they should price it at."	MS1a
Altruism	"Just that we help each other and sell more boats. We can help them and they can help us. So it's never been a war with them because we might be able to sell one or two extra boats per year because they have given us their boats."	MS1b
Loyalty	"Once you have got a good relationship built with the sub-contractors, then they will go the extra mile to make sure that you are happy at the end of the day because they know that the next job is coming and they want to get it."	MS4e
Mutual or unilateral assistance and learning		
Altruism	"Absolutely, a lot of our export promotions that we do together with groups of companies, they learn from each other and somebody might be selling a winch, and somebody might be selling a sail but they share stands at boat show and functions and they can talk about things together."	GB1d
Altruism / Advancement	"What I am saying is that we led them into that market. Previous to us getting them into that, they maybe just did two or three boats a year. They didn't really want to do it. And you know how many yachts are built in Europe, a whole lot more than here. So what I am saying is that we got it set up to how it can operate in a New Zealand market. They then took that model to the world."	ME2b
Altruism / Advancement	"We can't do the business for the companies but we can increase their opportunities to get more sales, to get more profitability, to get better training, to have a government that is more supportive and to do joint promotions where individual companies would not be able to achieve but on a joint basis we can group companies together to achieve additional business gain both domestically and internationally."	GB1e
Advancement / Constructiveness	"Marine High Impact Programme is one of the areas by which NZTE looks to help support collaborative activity amongst our New Zealand customers, that is the New Zealand companies that are looking to build business in international market places."	GB3b
Advancement/ Constructiveness	"Well I think certainly from the point of view of collaboration within the industry. It's an industry which is fundamentally quite open to innovation and has collaborated a lot in its marketing. When these companies go off-shore, because they are small companies and they largely go to the same trade shows and fairs, the same environments. There has been quite a history of collaborative behaviour where it suits the people. And we are keen to, NZTE is keen to foster that collaboration because it overcomes the scale disadvantages of small New Zealand businesses."	GB3c

Commitment to cluster		
Loyalty	"And you really have to rank the common goal as much higher than you do your own self-interest. I think you can pursue the self-interest thing for a period of time but I don't think that should be the objective."	ME3f
Loyalty / Constructiveness	"I think everybody in the marine industry accepts that we have to make sailing enjoyable and pleasurable and we have to ensure that owners stay in the market irrespective to whether it is with us or not. "	ME3g
Advancement	"They whole idea of sponsorship certainly at the yacht club level is to encourage people to sail and to make sure that a regatta is held and that the yacht club has got the resources to run it, if it has something to do to get prices or whatever."	ME3h
Constructiveness	"That is why the business philosophy is we are in business to make sure that our customers stay in business."	ME3i
Loyalty / Constructive-ness	"It is still very much an industry dominated by small businesses. In that sense it is no different from most New Zealand manufacturing industries. And one of the benefits of small businesses is the intimacy between them, that everybody that is involved in the business is around the coffee table and discussing things and has that sense and great deal of commitment into the industry and other people who are there."	GB3d

Table 7. Themes emerging from cross-coding of citizenship in innovation phases

Table 8. Themes emerging from cross-coding of citizenship in innovation phases

	Idea	Invention	Exploitation
Advancement	*Suppliers' involvement and integration* *Parallel involvement in sport and business* *Cooperation of complementary and competing firms* *Cooperation with public and non-profit organizations*	*Joint new product development* *Buyer testing and feedback on prototypes* *Recombination of resources from different suppliers*	*Joint promotional activities* *Mutual or unilateral assistance and learning* *Commitment to cluster*
Altruism	*Mentoring and consulting through networks* *Intermediaries as information provider* *Federating network meetings*	*Buyer testing and feedback on prototypes* *Circulation and networking in the local supply chain*	*Mutual recommendation and word-of-mouth* *Mutual or unilateral assistance and learning*
Compliance			
Conscientious	*Federating network meetings*	*Passion and initative*	
Constructiveness			*Joint promotional activities* *Mutual recommendation and word-of-mouth* *Mutual or unilateral assistance and learning* *Commitment to cluster*
Loyalty		*Circulation and networking in the local supply chain* *Passion and initative*	*Mutual recommendation and word-of-mouth* *Commitment to cluster*
Tolerance		*Passion and initative*	